IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 10/661,189
Confirmation No. 8310
Filing Date ..... September 12, 2003
Inventors ..... D. Hanks et al.
Group Art Unit 2627
Examiner ..... Christopher Lamb
Attorney's Docket No. 200310345-1
Title: Sensing Media Speed

APPEAL BRIEF (SUBSTITUTE)

Sir:

This Substitute Appeal Brief is filed in response to the Notification of Non-Compliant Appeal Brief mailed 04/07/2009.

1. REAL PARTY IN INTEREST.

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holding, LLC.

2. RELATED APPEALS AND INTERFERENCES.

There are no other appeals or interferences known to Appellants, Appellants' legal representative or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. STATUS OF CLAIMS.

Claims 1, 3, 4, 13, 15-21, 25-35, 38-40, 45, 46, 51 and 52 are pending. Claims 2, 5-12, 14, 22-24, 36, 37, 41-44, and 47-50 have been canceled. The rejections of all pending claims, Claims 1, 3, 4, 13, 15-21, 25-35, 38-40, 45, 46, 51 and 52, are appealed.

4. STATUS OF AMENDMENTS.

No amendments were filed after the final action.

5. SUMMARY OF CLAIMED SUBJECT MATTER.

The following is provided pursuant to Rule 41.37(c)(1)(v) which requires "a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, which shall refer to the specification by page and line number, and to the drawings if any, by reference characters." Nothing in this Section 5 should be construed to limit the scope of any of the claims, which are enumerated in full in Appendix I to this Appeal Brief. Where the text of the specification is delineated by paragraph numbers rather than page and line numbers, the paragraph numbers are referenced in this Appeal Brief. Such usage is believed to comply with the spirit if not the letter of Rule 41.37(c)(1)(v).

Independent Claim 1. Claim 1 is directed to a method for controlling the rotational speed of an optical data storage disk based on a pattern positioned outside the labeling area on the untracked, non-data side of the disk. E.g., label region 106 and reading features 110 in Fig. 1 (reproduced below) and Specification paragraphs 0022, 0034 and 0035 in Application serial no. 10/661,722 (Attorney Docket No. 200315232; publication no. 20050058043) incorporated by reference into the present application at paragraph 0001 of the Specification; and label area 126 and reference pattern 300 in Fig. 3 (reproduced below) and Specification paragraph 0029 of Application serial no. 10/347,074 (publication no. 20040141445) incorporated by reference into the present application at paragraph 0015 of the Specification.

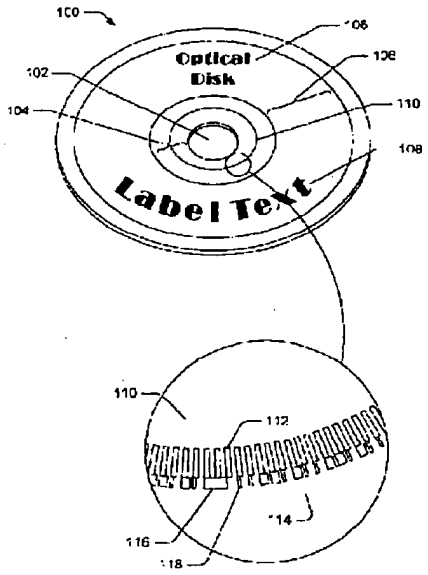

Fig. 1

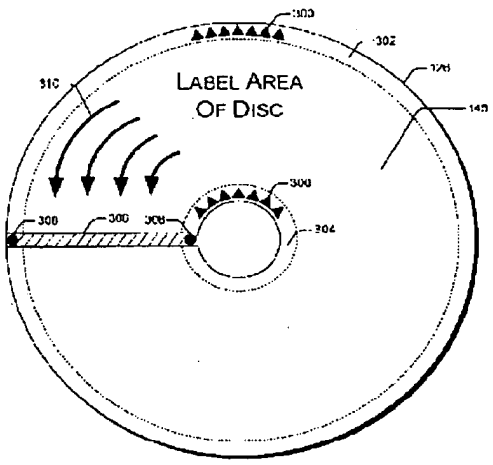

Fig. 3

The method of Claim 1 includes sensing the frequency of electromagnetic radiation radiating from the pattern on a rotating disk (e.g., Block 42 in Fig. 5 and Specification paragraphs 0022 and 0036), determining from the sensed frequency a rotational speed of the disk (e.g., Specification paragraphs 0036 and 0040), and controlling, with the sensed frequency, a rotational speed of the disk (e.g., Specification paragraphs 0038 and 0041).

Independent Claim 13. Claim 13 is directed to a device configured to control the rotational speed of an optical data storage disk based on a pattern positioned outside the labeling area on the untracked, non-data side of the disk, and to establish an absolute reference for radial positioning over the label area. E.g., label region 106 and reading features 110 in Fig. 1 and Specification paragraphs 0022, 0034 and 0035 in Application serial no. 10/661,722 (Attorney Docket No. 200315232; publication no. 20050058043); and label area 126 and reference pattern 300 in Fig. 3, Specification paragraph 0029, and laser spot 308 in Fig. 4, Specification paragraphs 0017, 0028 and 0033, of Application serial no. 10/347,074 (publication no. 20040141445).

The device of Claim 13 includes: a rotation device configured to rotate the disk (e.g., motor 30 and spindle 28 in Fig. 1); an electromagnetic radiation source directed at the rim (e.g., radiation source 12 in Fig. 1); an electromagnetic radiation sensor configured to sense a frequency of electromagnetic radiation radiated from the reflective regions of the pattern (e.g., radiation sensor 14 in Fig. 1 and Specification paragraph 0022); and a controller configured to, with a sensed frequency of electromagnetic radiation radiated from the reflective regions of the pattern, control a rotational speed of the disk and establish an absolute reference for radial positioning over the label area on the untracked non-data side of the disk (e.g., controller 18 and motor controller 34 in Fig. 1; Specification paragraphs 0025-0027 and 0038; and Specification paragraphs 0017, 0028 and 0033, of Application serial no. 10/347,074 (publication no. 20040141445)).

Independent Claim 26. Claim 26 is a means plus function counterpart to method Claim 1. The mass storage device of Claim 26 includes:

means for sensing electromagnetic radiation with a stationary sensor from a pattern positioned outside the label area on the non-data side of the disk (radiation sensor 14 in Figs. 1-4 and Specification paragraph 0022);

means for controlling the rotational speed of the media based on the sensed electromagnetic radiation (controller 18 and motor controller 34 in Fig. 1 and Specification paragraphs 0025-0027 and 0038);

means for positioning an electromagnetic source radially over the label area based on the sensed electromagnetic radiation (controller 18 and radial positioner 32 in Fig. 1 and Specification paragraphs 0025-0026); and

means for controlling exposure of the media by the electromagnetic source in conjunction with the means for controlling and the means for positioning (controller 18 and emitter 16 in Fig. 1 and Specification paragraphs 0025 and 0037-0038).

Independent Claim 39. Claim 39 is a computer program counterpart to device Claim 13. Claim 13 is directed to a program storage system (e.g., program storage device system 22 on computer 20 in Fig. 1) embodying a computer program, applet or instructions for controlling the rotational speed of an optical data storage disk based on a pattern positioned outside the labeling area on the untracked, non-data side of the

disk, and to establish an absolute reference for radial positioning over the label area. E.g., label region 106 and reading features 110 in Fig. 1 and Specification paragraphs 0022, 0034 and 0035 in Application serial no. 10/661,722 (Attorney Docket No. 200315232; publication no. 20050058043); and label area 126 and reference pattern 300 in Fig. 3, Specification paragraph 0029, and laser spot 308 in Fig. 4, Specification paragraphs 0017, 0028 and 0033, of Application serial no. 10/347,074 (publication no. 20040141445).

The system of Claim 39 includes a computer program, applet or instructions for rotating the disk (e.g., block 38 in Fig. 5 and Specification paragraph 0034); sensing a frequency of electromagnetic radiation radiating from the reflective regions of the pattern or from the magnetic regions of the pattern (e.g., block 42 in Fig. 5 and Specification paragraph 0036); controlling, with the sensed frequency, a rotational speed of the disk (e.g., block 44 in Fig. 5 and Specification paragraph 0038); and establishing, with the sensed frequency, an absolute reference for radial positioning over the label area on the untracked non-data side of the disk (e.g., Specification paragraphs 0017, 0028 and 0033 of Application serial no. 10/347,074 (publication no. 20040141445)).

Independent Claim 51. Claim 51 is directed to a method for (1) establishing an absolute radial location as a reference for radial positioning over the label area on the non-data side of an optical disk (e.g., Specification paragraphs 0017, 0028 and 0033 of Application serial no. 10/347,074 (publication no. 20040141445)) and (2) controlling the rotational speed of the disk (e.g., block 44 in Fig. 5 and Specification paragraph 0038), based on sensing a reference pattern positioned outside the label area on the non-data side of the disk (e.g., block 42 in Fig. 5 and Specification paragraph 0036; label region 106 and reading features 110 in Fig. 1 and Specification paragraphs 0022, 0034 and 0035 in Application serial no. 10/661,722 (Attorney Docket No. 200315232; publication no. 20050058043); and label area 126 and reference pattern 300 in Fig. 3, Specification paragraph 0029, and laser spot 308 in Fig. 4, Specification paragraphs 0017, 0028 and 0033 of Application serial no. 10/347,074 (publication no. 20040141445)).

6. GROUNDS OF REJECTION TO BE REVIEWED.

1. Claims 1, 3, 4, 13, 15, 16, 19-21, 25-29, 34, 35, 38-40, 45, 46, 51 and 52 stand rejected under Section 103 as being obvious over Honda 20020191517 in view of Black 3426337.

2. Claims 17, 30 and 32 stand rejected under Section 103 as being obvious over Honda and Black in view of Nakamura 4987301.

3. Claims 18, 31 and 33 stand rejected under Section 103 as being obvious over Honda and Black in view of Satoh 5119363.

7. ARGUMENT.

GROUND NO. 1

Claims 1, 3, 4, 13, 15, 16, 19-21, 25-29, 34, 35, 38-40, 45, 46, 51 and 52 stand rejected under Section 103 as being obvious over Honda 20020191517 in view of Black 3426337.

Claims 1, 3, 4, 13, 15, 16, 19-21, 25-29, 34, 35, 38-40, 45, 46, 51 and 52 stand rejected under Section 103 as being obvious over Honda 20020191517 in view of Black 3426337.

In evaluating the legal question of obviousness, the Examiner must, as a matter of fact, determine the scope and content of the prior art and then ascertain the differences between the claimed subject matter and the prior art. Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966). The question of obviousness, however, is not whether each of the differences between the claimed invention and the prior art would themselves have been obvious, but whether the claimed invention as a whole would have been obvious. MPEP § 2141.02(I) (citing Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983) and Schenck v. Nortron Corp., 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)).

Establishing An Absolute Reference Outside A Label Area for Radial Positioning Inside The Label Area (Independent Claims 13, 39 and 51)

In the device of Claim 13, the controller is "configured to ... establish an absolute reference for radial positioning on the untracked non-data side of the disk." In the program storage system of Claim 39, the instructions are executable by the computer to perform the act of "establishing ... an absolute reference for radial positioning on the

untracked non-data side of the disk." Similarly, the method of Claim 51 includes the act of "establishing an absolute radial location as a reference for radial positioning on the non-data side of the disk."

The "absolute" limitation recited in Claims 13, 39 and 51 is enabled by U.S. patent Application serial no. 10/347,074, which was incorporated by reference into the present Application at paragraph 0015 of the Specification. Although "absolute" is not specially defined in the '074 Application, its meaning in the context of establishing a reference for radial positioning is clear -- a fixed point or location to which all radial positioning may be referenced. '074 Application, paragraphs 0017, 0028 and 0032.

In Black, signal pulses derived from the "radial boundary transition" on the reference pattern and pulses derived from the "spiral boundary transition" on the reference pattern are used to determine and control the position of the transducer over the disk. See, for example, Black column 2, line 71 through column 3, line 3. In Black, the configuration of the reference pattern allows the transducer to know where it is on the disk -- one side of the star shaped projections on the pattern forms radii and the other a spiral. The spoke narrows in the radial direction allowing the transducer to read the position radially out on the disk. The actual position of the transducer can thus be corrected to the desired position (if it is different from the desired position). Nowhere does Black teach establishing a fixed point or position on the disk to which other points or positions are referenced. On the contrary, the reference pattern in Black indicates directly the position of the transducer over the disk.

The use of an absolute radial reference, as claimed, is characteristic of an open loop control system in which there is no direct connection between the output of the system (moving the transducer a predetermined distance from the reference position to the desired position) and the actual conditions encountered (detecting the actual position of the transducer over the disk). Black is characteristic of a closed loop control system in which the position of the transducer is adjusted based on detecting the actual location of the transducer over the disk -- a sensor monitors the actual location on the disk and feeds the data back to the controller to adjust the control input as necessary to keep the transducer at the desired location over the disk. This distinction is significant

because an open loop control system is typically more simple and, hence, less costly than a closed loop system.

Claim 51 was amended to recite that the reference pattern is positioned on a rim of the disk outside a label area in which images may be formed on the non-data side of the disk and establishing an absolute radial location as a reference for radial positioning over the label area on the non-data side of the disk. Similar amendments were made to Claims 13 and 39. These amendments to Claims 26, 39 and 51 help clarify an "absolute" reference and more clearly distinguish the combination of Honda and Black. Amended Claim 51, for example, recites sensing a reference pattern that is positioned outside a label area and establishing an absolute radial location as a reference for radial positioning over the label area. Thus, the absolute radial location is established based on a pattern outside the label area as a reference for positioning inside the label area. In Black, by contrast, the transducer must be over the reference pattern for the controller to know the location of the transducer and, accordingly, to adjust the position of the transducer to a desired location.

Black Teaches Away From Open Loop Position Control (Independent Claims 13, 39 and 51)

Black expressly teaches away from open loop position control. Black column 1, lines 35-68. In a closed loop position control system, the position of the moving part is continually detected (or, at least, it may be continually detected). In an open loop system, by contrast, there is no sensor to continuously detect the position of the moving part. Black teaches a closed loop system. As noted above, establishing an absolute radial location based on a pattern outside the label area as a reference for positioning inside the label area reflects an open loop system.

A prior art reference must be considered in its entirety, including portions that would lead away from the claimed invention. MPEP 2141.02 (citing W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)). The closed loop system of Black would not suggest an open loop system to the ordinarily skilled artisan particularly where, as here, Black expressly teaches away from the use of an open loop system.

Speed Control Based On Sensing A Pattern Outside The Label Area (Independent Claims 1, 13, 26, 39 and 51)

Claim 1 recites that the pattern is positioned on a rim outside a label area in which images may be formed on the non-data side of the disk. Claim 26 and, as noted above, Claims 13, 39 and 51 recite similar limitations. Thus, rotational speed is controlled based on sensing a pattern outside the label area. Black's reference pattern extends across nearly the entire disk. Black Fig. 1. Hence, even if it is assumed Black teaches speed control based on sensing this pattern, he does not teach speed control based on sensing a pattern outside the label area of Honda. See, for example, Honda label surface 52, Figs. 12A-12C.

The Combination With Black Renders Honda Inoperative (Independent Claims 1, 13, 26, 39 and 51)

Honda is directed to a method for forming images on a label area of an optical disk by exposing the surface to a laser. Honda Abstract. Superimposing Black's

reference pattern (which extends across nearly the entire disk) on Honda's disk would obliterate the label area, rendering the disk useless for its intended purpose. See, for example, Honda label surface 52, Figs. 12A-12C. Hence, there is no reason an ordinarily skilled artisan would combine Honda and Black even if it assumed the combination might somehow be interpreted as teaching the claimed subject matter. See, KSR Int'l Co. v. Teleflex, Inc. 550 U.S. ___, 127 S. Ct. 1727 (April 30, 2007) (pages 15-16 of the Bench Opinion) and MPEP 2143.01.V ("If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).")

In summary, the combination of Honda and Black does not teach or suggest several key elements of each of independent Claims 1, 13, 26, 39 and 51 and, in any event, there is no reason the ordinarily skilled artisan would combine individual elements from Honda and Black to render obvious the claimed subject matter as a whole.

GROUND NO. 2

Claims 17, 30 and 32 stand rejected under Section 103 as being obvious over Honda and Black in view of Nakamura 4987301.

Claims 17, 30 and 32 stand rejected under Section 103 as being obvious over Honda and Black in view of Nakamura 4987301.

The rejections of Claims 17 and 30 and 32, which depend from Claims 13 and 26 respectively, are based on the assertion that the base claim is obvious over Honda in view of Black. As detailed above, independent Claims 13 and 26 distinguish patentably over the combination of Honda and Black. For these same reasons, therefore, dependent Claims 17, 30 and 32 distinguish over the combination of Honda, Black and Nakamura.

GROUND NO. 3

Claims 18, 31 and 33 stand rejected under Section 103 as being obvious over Honda and Black in view of Satoh 5119363.

Claims 18, 31 and 33 stand rejected under Section 103 as being obvious over Honda and Black in view of Satoh 5119363.

The rejections of Claims 18 and 31 and 33, which depend from Claims 13 and 26 respectively, are based on the assertion that the base claim is obvious over Honda in view of Black. As detailed above, independent Claims 13 and 26 distinguish patentably over the combination of Honda and Black. For these same reasons, therefore, dependent Claims 18, 31 and 33 distinguish over the combination of Honda, Black and Satoh.

Respectfully submitted,

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APPENDIX I -- CLAIMS INVOLVED IN THE APPEAL

1.(previously presented) A method of using electromagnetic radiation to sense the speed of an optical disk having a tracked data side on which data may be stored and an untracked non-data side that includes a pattern of reflective and non-reflective regions or a pattern of magnetic and non-magnetic regions aligned circularly about the disk, the pattern being positioned on an inner rim or on an outer rim of the disk, or both, outside a label area in which images may be formed on the non-data side of the disk, the method comprising:

rotating the disk;

sensing, with a stationary detector, a frequency of electromagnetic radiation radiating from the pattern on the rotating disk;

determining from the sensed frequency a rotational speed of the disk; and

controlling, with the sensed frequency, a rotational speed of the disk.

2.(canceled)

3.(previously presented) The method of claim 1 wherein the pattern comprises a spoke pattern.

4.(previously presented) The method of claim 1 wherein the pattern comprises a gear-tooth pattern.

5-12.(canceled)

13.(previously presented) A device for interacting with an optical disk having a tracked data side on which data may be stored and an untracked non-data side that includes a pattern of reflective and non-reflective regions aligned circularly about a rim of the disk outside a label area in which images may be formed on the non-data side of the disk, the device comprising;

a rotation device configured to rotate the disk;

an electromagnetic radiation source directed at the rim, wherein electromagnetic radiation radiated from the reflective regions of the pattern originates from the electromagnetic radiation source directed at the rim;

an electromagnetic radiation sensor configured to sense a frequency of electromagnetic radiation radiated from the reflective regions of the pattern; and

a controller coupled to the electromagnetic radiation sensor, the controller configured to, with a sensed frequency of electromagnetic radiation radiated from the reflective regions of the pattern, control a rotational speed of the disk and establish an absolute reference for radial positioning over the label area on the untracked non-data side of the disk.

14.(canceled)

15.(previously presented) The device of claim 13 wherein the sensor is disposed to sense electromagnetic radiation reflected from a spoke pattern on the disk.

16.(previously presented) The device of claim 13 wherein the sensor is disposed to sense electromagnetic radiation reflected from a gear-tooth pattern on the disk.

17.(previously presented) The device of claim 13 the electromagnetic radiation source includes a coherent electromagnetic radiation source.

18.(previously presented) The device of claim 13 the electromagnetic radiation source includes a non-coherent electromagnetic radiation source.

19.(previously presented) The device of claim 13 wherein the rotation device includes:

a spindle coupled to the disk when the disk is installed in the device; and

a motor coupled to the spindle.

20.(previously presented) The device of claim 19 wherein the controller includes a motor controller configured to control the motor.

21.(previously presented) The device of claim 13 wherein the rim comprises an inner rim or on an outer rim, or both, outside a label area on the non-data side of the disk.

22-24.(canceled)

25.(previously presented) The device of claim 13 wherein the controller includes a radial positioner for controlling a placement of a beam of the electromagnetic radiation on the disk.

26.(previously presented) A mass storage device having media that is rotatable, comprising;

means for sensing electromagnetic radiation with a stationary sensor from a pattern of reflective and non-reflective or magnetic and non-magnetic regions aligned circularly about a rim of a trackless non-data side of the media, the pattern being positioned on an inner rim or on an outer rim of the disk, or both, outside a label area in which images may be formed on the non-data side of the disk;

means for controlling the rotational speed of the media based on the sensed electromagnetic radiation;

means for positioning radially over the label area an electromagnetic source with respect to a surface of the trackless non-data side of media based on the sensed electromagnetic radiation; and

means for controlling exposure of the media by the electromagnetic source in conjunction with the means for controlling and the means for positioning.

27.(previously presented) The mass storage device of claim 26 wherein the pattern includes a pattern of reflective and non-reflective regions aligned circularly about a rim of the media and the mass storage device further including means for

sourcing electromagnetic radiation directed at the rim, wherein the electromagnetic radiation radiated from the reflective regions of the pattern originated from the electromagnetic radiation source directed at the rim.

28.(original) The mass storage device of claim 27 wherein the means for sensing is disposed to sense electromagnetic radiation from a spoke pattern on the media.

29.(original) The mass storage device of claim 27 wherein the means for sensing is disposed to sense electromagnetic radiation from a gear-tooth pattern on the media.

30.(previously presented) The mass storage device of claim 27 wherein the means for sourcing electromagnetic radiation includes a coherent electromagnetic radiation source.

31.(previously presented) The mass storage device of claim 27 wherein the means for sourcing electromagnetic radiation includes a non-coherent electromagnetic radiation source.

32.(previously presented) The mass storage device of claim 27 wherein the means for sourcing electromagnetic radiation includes a coherent electromagnetic radiation emitter.

33.(previously presented) The mass storage device of claim 27 wherein the means for sourcing electromagnetic radiation includes a non-coherent electromagnetic radiation emitter.

34.(original) The mass storage device of claim 26 wherein the means for controlling the rotational speed includes:

a spindle coupled to the media and

a motor coupled to the spindle.

35.(previously presented) The mass storage device of claim 34 wherein the means for controlling rotational speed includes a motor controller configured to control the rotational speed of the media to 0.25 meters/second at an accuracy of 0.02 percent.

36-37.(canceled)

38.(original) The mass storage device of claim 26 wherein the means for controlling includes placement means for controlling a placement of a beam of the electromagnetic radiation on the media.

39.(previously presented) A program storage system readable by a computer, tangibly embodying a program, applet, or instructions executable by the computer to perform method steps for using sensed electromagnetic radiation to sense the speed of an optical disk having a tracked data side on which data may be stored and an untracked non-data side that includes a pattern of reflective and non-reflective regions or a pattern of magnetic and non-magnetic regions aligned circularly about the disk, the pattern being positioned on an inner rim or on an outer rim of the disk, or both, outside a label area in which images may be formed on the non-data side of the disk, the method comprising:

rotating the disk;

sensing a frequency of electromagnetic radiation radiating from the reflective regions of the pattern or from the magnetic regions of the pattern;

controlling, with the sensed frequency, a rotational speed of the disk; and

establishing, with the sensed frequency, an absolute reference for radial positioning over the label area on the untracked non-data side of the disk.

40.(previously presented) The program storage system of claim 39, further comprising determining from the sensed frequency a rotational speed of the disk.

41-44.(canceled)

45.(previously presented) The program storage system of claim 39 wherein controlling a rotational speed of the disk includes controlling the rotational speed of a spindle onto which the disk is fixed.

46.(previously presented) The program storage system of claim 39 wherein controlling a rotational speed of the disk includes controlling the rotational accuracy of a spindle onto which the disk is fixed to allow placement to within a quarter of a pixel at 600 dpi on the disk.

47-50.(canceled)

51.(previously presented) A method, comprising:

sensing a reference pattern on a trackless non-data side of an optical disk, the pattern being positioned on an inner rim or on an outer rim of the disk, or both, outside a label area in which images may be formed on the non-data side of the disk;

based on the sensing, establishing an absolute radial location as a reference for radial positioning over the label area on the non-data side of the disk; and

based on the sensing, controlling a rotational speed of the disk.

52.(previously presented) The method of Claim 51, wherein sensing the reference pattern comprises scanning the reference pattern with a first light and detecting light reflected from the pattern and the method further comprises, based on the establishing, positioning a second light radially over the label area on the disk.

APPENDIX II -- EVIDENCE SUBMITTED UNDER RULES 130, 131 OR 132

none

APPENDIX III – RELATED PROCEEDINGS

none